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REMARKS

This amendment is intended to be fully responsive to the Non-Final Office Action having a mailing date of May 17, 2006, wherein claims 1-5, 8-12, and 14-15 were rejected. Applicant notes that the Examiner has not listed claim 14 in the "Status of Claims." (See the Office Action, Page 2, Number 2).

Applicant has carefully reviewed the Final Office Action and thanks the Examiner for the detailed review of the pending claims. Claims 1 and 11 have been amended. No new matter has been added and no claims have been cancelled. Applicant respectfully requests reconsideration of the present application in view of the above amendment and the following remarks.

Previous Claim Rejections – 35 U.S.C. § 102

Claims 1-5, 11, and 15 were rejected under 35 U.S.C. § 102(b) as allegedly anticipated by U.S. Patent Number 2,340,466 (Gosling). Applicant respectfully traverses the rejection. In addition to the remarks presented in prior responses, Applicant provides the following remarks.

Independent Claims 1 and 11

A. Rigid

In the first instance, as amended, claims 1 and 11 recite "a generally rigid annular body" in the claim. However, Gosling describes a "packing ring" that is a "single ring formed from rubber or like mouldable elastic material." (Emphasis added) (See Gosling; Page 1, Col. 1, Lines 12-15). Thus, the Gosling ring is not "rigid" as amended. The Gosling ring is intended to be deformable where "[t]he insertion of the piston in the cylinder distorts both lips somewhat inwardly." (See Gosling, Page 2, Col. 3, Lines 31-39). Again, the Gosling ring is not "rigid" as amended.

Applicant further notes that Gosling is directed to a master brake cylinder rather than an internal combustion engine. (See Gosling, Page 1, Col. 2, Lines 24-37). Thus, Gosling does not disclose "combustion gasses" as claimed.

For at least these reasons, claims 1 and 11 are in condition for allowance.

B. Twist

Claims 1 and 11 recite "a positive twist." Gosling does not show a ring with such a twist. Thus, claims 1 and 11 include elements not disclosed by Gosling. Apart from the structural difference alone, positive and negative ring twist consequently provide a different ring performance. Ring twist (positive or negative) can affect the amount of gas pressure from combustion behind the piston ring as well as the amount of gas pressure at the face of the ring. Positive twist rings typically seal between the outside-top edge of the ring and the outside-top of the piston ring groove. The seal substantially prevents combustion gasses from flowing to the back of the piston ring. However, the outer face of the piston ring is opened to combustion gas pressure. Negative twist rings typically seal between the inside-top edge of the ring and the top side of the piston ring groove. Negative twist rings allow a greater amount of gas to flow over the top of the piston ring as compared to the positive twist ring.

Piston rings may be manufactured with asymmetrical cross-sections to induce twist in a ring (e.g., a taper angle on the outer face of the piston ring). A Napier-style ring has a positive twist due to the imbalanced cross section and is known for improved oil control. (See the Office Action, Page 9, FIG. 2). However, such a Napier-style ring allows for the face of the ring to be exposed to a greater pressure from combustion gasses and reduces the sealing efficiency of the tapered face ring. Thus, there is a trade-off.

Additionally, as stated by Applicant, traditional Napier-style rings suffer ring collapse when twisted. (See ¶ [0006]). The "projection" of claims 1 and 11 reduce the occurrence of ring collapse in a Napier-style ring. Again the Examiner has not shown, in general, a Napier-style ring with a projection. Moreover, the Examiner has not shown a ring as particularly claimed including a projection and a generally hook-shaped groove.

For at least these reasons, claims 1 and 11 are in condition for allowance.

C. Hook Shaped Groove

Gosling does not disclose the hook-shaped groove as claims 1 and 11 recites. Claim 1 requires that "a lower surface of the piston ring includes a generally hook-shaped groove" and claim 11 requires that "said lower surface further includes a generally hook-shaped groove." It is clear from the claims that the "lower surface" is not on the combustion side of the ring. For example, claim 1 recites "a lower surface of the piston ring includes a generally hook-shaped groove [...] wherein said projection extends radially outwardly from said outer peripheral face along said upper surface." Claim 11 recites "said projection extends radially outwardly along said upper surface, wherein said projection reduces exposure of said outer peripheral face to the combustion chamber and said lower surface further includes a generally hook-shaped groove and the intersection of said generally hook-shaped groove and said outer peripheral face defines said edge." Thus, the generally hook-shaped groove of claims 1 and 11 are on the bottom side (i.e., the opposite of the combustion side).

Gosling does not include a hook-shaped groove on a "lower surface." Indeed, the Examiner points to the hook-shaped groove on the upper surface the ring. (See Office Action, Figure on Page 3 with arrow to "generally hook shaped groove..."). The figures of Gosling do not indicate a hook-shaped groove on a lower surface. On the contrary, Gosling discloses rings having substantially flat bottom surfaces or having curves from the lower surface to an inner surface. (See FIGS. 2-4). Thus, Gosling does not disclose the required limitations of claims 1 and 11. Applicant notes that the Examiner did not respond to this argument from the prior response.

In sum, Gosling does not disclose the required claim limitations regarding the "hook-shaped groove," as claimed in conjunction with the "lower surface." Moreover, as amended, Gosling does not disclose "a positive twist." Thus, because Gosling does not disclose each and every claim limitation, claims 1 and 11 are in condition for allowance.

Dependent Claims 2-5, 8-10, 12, and 14-15

Dependent claims 2-5 and 8-10 depend from claim 1. Further, dependent claims 12 and 14-15 depend from claim 11. Thus, by virtue of their dependency, these claims are also patentable. Therefore, dependent claims 2-5, 8-10, 12, and 14-15 are in condition for allowance.

New Claim Rejections – 35 U.S.C. § 103

Claims 1-5, 8-12, and 14-15 are were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Norwood '969 in view of Applicant's Admitted Prior Art ("AAPA") and Non-Patent Literature, JE Pro Seal Piston Rings Catalogue (JE Pro Seal). Applicant notes that JE Pro Seal is dated as "2005" and that the present application was filed November 20, 2003. Thus, it is unclear that JE Pro Seal is prior art to Applicant's application. However, Applicant responds to the Napier Face Ring as being known in the art. (See the Office Action, Page 9, FIG. 2).

The Examiner stated as an alleged motivation to modify Norwood to include a generally hook-shaped groove "to increase the efficiency of the seal and to help channel oil back along the cylinder wall." However, Napier-style rings do not include a projection as described in claims 1 and 11. This is clearly shown in AAPA and JE Pro Seal, et al. Moreover, Norwood does not include a generally hook-shaped groove.

Applicant submits that the Examiner is exercising impermissible hindsight. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). The prior art does **NOT** teach or suggest adding a projection to a Napier-style ring. The prior art also does **NOT** teach or suggest adding a generally hook-shaped groove to an otherwise flat bottom surface of a piston ring including a projection. It is telling that since Norwood reissued in 1920, the Examiner has not provided a reference teaching or suggesting the novel combination of features. Moreover, neither Norwood, nor AAPA, nor JE Pro Seal provide any teaching or suggestion of reducing ring

collapse of a Napier-style ring by addition of a protrusion. (See the present Application, ¶ [0006]-[0007]).

Moreover, the Examiner's alleged motivation is contradicted in JE Pro Seal that includes language of the "Napier or 'hook' style ring face." (See the Office Action, Page 9, Second Paragraph). It is clear that the JE Pro Seal reference is discussing two types of rings rather than a specific feature of the ring that is portable. JE Pro Seal discusses a "Taper Face Ring" (see the Office Action, Page 9, FIG. 1) and a "Napier Face Ring" (see the Office Action, Page 9, FIG. 2). JE Pro Seal does not discuss certain features of the ring elements as being mix-and-match.

Applicant respectfully traverses the 103(a) rejections because there is no suggestion, motivation, or objective reason to combine the cited references. "If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue." *In re Rouffet*, 47 USPQ2d 1453 at 1457 (Fed Cir. 1998). "Rejecting patents solely by finding prior art corollaries for the claimed elements would permit an examiner to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention. Such an approach would be 'an illogical and inappropriate process by which to determine patentability'." Id. (Quoting *Sensonics, Inc. v. Aerosonic Corp.*, 81 F.3d 1566, 1570, 38 USPQ2d 1551, 1554 (Fed. Cir. 1996)). Accordingly, Applicant respectfully requests that the § 103 rejection be withdrawn.

CONCLUSION

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 18-0013, under Order No. 60680-1818 from which the undersigned is authorized to draw.

Dated: September 18, 2006

Respectfully submitted,

By _____

Kristin L. Murphy
Registration No.: 41,212
RADER, FISHMAN & GRAUER PLLC
39533 Woodward Avenue
Suite 140
Bloomfield Hills, Michigan 48304
(248) 594-0633
Attorney for Applicant